

Solar Car Race 2010

Art-Tech Festival- May 7, 2010

OBJECTIVE

The objective of the Solar Car Race event on May 7, 2010 at American River College is to give students the opportunity to design and build a solar car and participate in a fun and informal race to demonstrate their unique and creative car designs!! Students will receive a kit (www.solarworld.com) containing a solar panel and a motor/gear set that will race on an approximate 20-meter racecourse.

MATERIALS

1. The motor and solar panel contained in the kit must be used without modification. Each car must have an eyelet (or eyelets) attached to the side or bottom of the car chassis. (See Attachment A). Teams can also design their own eyelet, which will allow the car to be easily attached and removed from the guide wire without disconnecting the guide wire. The kit also contains wheels and gears that may or may not be used (as determined by the school teams) in the construction of the solar vehicle.
2. The remainder of the vehicle must be your own design and can be made from any other materials.

VEHICLE SPECIFICATIONS

1. The vehicle must be safe for contestants and spectators (no sharp edges).
2. The vehicle must fit within the following dimensions:
30 centimeters (cm) x 60 cm x 30 cm
3. Sunlight will be the only power source for the vehicle. (No batteries/energy storage devices)
4. Any energy-enhancing devices, like mirrors must be attached to the vehicle.
5. The vehicle must be steered by the guide wire using one or more eyelets affixed to the vehicle.
The vehicle must be easily attached and removed from the guide wire without disconnecting the guide wire.
6. The vehicle must have a chassis that is three-dimensional. Teams will NOT be allowed to connect the axles and wheels of the vehicle directly to the solar module. The solar module cannot be used as the chassis of the car and must be removable.
7. Additional resources for building your vehicle can be found at the National Renewable Energy Lab (NREL) website: [http:// www.nrel.gov/education/jss_hfc.html](http://www.nrel.gov/education/jss_hfc.html)
(Click on "So You Want to Build a Model Solar Car".)
Plus Chimacum School Junior Solar Sprint website
http://eagle.csd49.org/middle/jss/Course_Instr.htm

TRACK SPECIFICATIONS

1. The length of the racecourse is approximately 20 meters long.
2. Practices lanes in the same direction of the racecourse will be provided.
3. A guide wire will be located in the center of each lane of the track and will **be approximately 1.5 cm above the track surface.**
4. The track will be a hard, relatively smooth, generally level surface.

RACE CONDUCT

1. At race time, vehicles will be placed behind the starting line with all wheels in contact with the ground. Only race participants are allowed at the start and finish lines.
2. Contestants will cover the solar module with a large manila envelope (provided by race officials) without touching the module.
3. At the start of the race, the contestants will remove the large manila envelope to allow the solar module to generate electricity for powering the vehicles.
4. Team members may not accompany or touch the vehicle while it is racing on the track. Vehicles stalled on the track may be retrieved after the end of the race has been declared, with a second chance to race in the heat immediately after the one they stalled in.
5. Vehicle and team members must remain at the finish line until all vehicles have finished.
6. **Every 7th heat will be a FINAL RACE consisting of the 1st place winners of the 6 heats that came before it.**

Additional resources posted online at
www.solarschoolhouse.org/newssh/arc/

Awards

Awards will be given for the following.

SPEED -First Place & Second Place

SUSTAINABLE COMPONENTS Award – The design encourages the dismantling of vehicle and re-using parts.

INNOVATION IN DESIGN award – demonstrates creativity and innovation in design. Eg. Use of recycled materials.